UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/085,528	02/25/2002	Mark W. Lambert	31008.P037	9800

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EXAMINER
SHARON, AYAL I

ART UNIT	PAPER NUMBER
2123	

DATE MAILED: 03/21/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)
Office Action Summary	10/085,528	LAMBERT ET AL.
	Examiner	Art Unit
	Ayal I. Sharon	2123

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on _14 November 2005_.

2a) ☒ This action is **FINAL**.   2b) ☐ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) _1-39_ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) _1-39_ is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☒ The drawing(s) filed on _25 February 2002_ is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☐ All   b) ☐ Some * c) ☐ None of:

        1. ☐ Certified copies of the priority documents have been received.

        2. ☐ Certified copies of the priority documents have been received in Application No. _____.

        3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

Introduction

1. Claims 1-9, 11-13, and 15-39 of U.S. Application 10/085,528, originally filed on 02/25/2002, are currently pending. Claims 10 and 14 have been cancelled. Claims 1, 3, 8-9, 11-12, 15, 19-23, 25,27 and 30-33 have been amended in the amendment filed 11/14/05.

2. Applicants' amendments to the claims overcome the previous prior art rejections, which have been withdrawn. However, the amendments necessitated the new grounds of rejection presented in this Office action. Accordingly, this action is made final.

Oath/Declaration

3. Examiner has located a relevant published news article regarding the instant application. The article is:

1. Zarrillo, Andrew. "Autodesk Licenses Constraint Management Technology." <u>Business Wire.</u> New York. Feb. 26, 1990. Sec.1, p.1.

4. The specification of the instant application (see p.9, lines 13-21) teaches the following (emphasis added):

> Except for the teachings of the present invention incorporated in the pattern determination engine 108, the mechanical design application 100 is intended to represent a broad range of CAD software known in the art, including but not limited to Autodesk Inventor™, available from Autodesk, Inc. of San

Rafael, California. Additionally, as alluded to earlier, the mechanical design application 100 may include parametric software components to provide parametric functionality, such as, but not limited to, **2D Dimensional Constraint Manager available from D-cubed, Ltd. of Cambridge, England.**

5. Examiner notes that the date of the news article is Feb. 26, 1990, a full 12 years before the filing date of the instant application. As detailed in the rejections that follow, Examiner finds that the limitations of the claimed invention read on the functional capabilities of the "Dimensional Constraint Manager" product.

6. Applicants are reminded of their declaration, which acknowledges the duty to disclose to the Office all information known to the persons to be material to patentability as defined in 37 CFR 1.56.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. The prior art used for these rejections is as follows:

The Feb.3, 2001 version of the official corporate website of D-cubed, Ltd. of Cambridge, England, reads upon the claimed invention as stored in the "Internet Wayback Machine".

(http://web.archive.org/web/20010201070800/http://www.d-cubed.co.uk)

D-cubed, Ltd. is the developer of the 2D Dimensional Constraint Manager

product. (Referred to as **"the D-cubed reference"**).

9. The claim rejections are hereby summarized for Applicant's convenience. The

detailed rejections follow.

10. **Claims 1-39 rejected under 35 U.S.C. 102(b) based upon a public use or**

sale of the invention. The 2D Dimensional Constraint Manager available from

D-cubed, Ltd. of Cambridge, England, reads upon the claimed invention.

    a) In the D-cubed reference, on the page titled "The 2D and 3D Dimensional

       Constraint Managers: Overview", the section titled "What is variational

       design?" teaches the following:

> In brief, variational techniques enable the end-user to specify and
> control their geometric models through the use of simple rules.
> Such rules frequently include dimensions and constraints.
> Dimensions, such as distances, angles and radii, have an easily
> understood interpretation. The meaning of constraints is less
> obvious. In fact they are simply rules that restrict, *i.e. constrain*, the
> behavior of the geometries in the model. Examples of constraints
> include parallelism, tangency and concentricity.

> To modify a model, the end-user simply specifies a change to the
> rules, such as a modified value for a dimension. The DCM then
> automatically re-calculates the locations of all the geometries
> affected by the new dimension value, whilst ensuring that their final
> locations are consistent with the previously applied dimensions and
> constraints. The end-user does not have to re-position the
> geometries manually to create the new configuration, hence their
> productivity is greatly enhanced.

    b) Examiner finds that the claimed "boundary" is one of the "constraints"

       taught in the section recited above.

11. Claims 1-39 are rejected under 35 U.S.C. 102(a) as being anticipated by the

D-cubed reference.

12. In regards to Claim 1, The D-cubed reference teaches the following limitations:

> 1.   (Currently amended) A method comprising:
> receiving an input for the pattern comprising a plurality of features included within a boundary of a CAD geometry piece where a feature corresponds to a feature of the CAD geometry piece;

(See the section of the D-cubed reference that is recited verbatim in the 102(b) on-sale bar rejection)

> receiving an indication of modification to the CAD geometry piece; automatically modifying the CAD geometry piece and its boundary based at least upon the received indication; and

(See the section of the D-cubed reference that is recited verbatim in the 102(b) on-sale bar rejection)

> automatically modifying at least one of the pattern or the plurality of features to be continuously included within the boundary of the modified CAD geometry piece, based at least upon the modified CAD geometry piece and the received input.

13. In regards to Claim 2, The D-cubed reference teaches the following limitations:

> 2.   (Original) The method of claim 1, wherein said receiving the input comprises receiving an input corresponding to an indication of a direction, the indication having an X-component and a Y-component.

(See the section of the D-cubed reference that is recited verbatim in the 102(b) on-sale bar rejection. Examiner finds that X and Y coordinates are inherently stored in 2-Dimensional CAD drawings)

14. In regards to Claim 3, The D-cubed reference teaches the following limitations:

> 3.   (Currently amended) The method of claim 1, wherein:
> said receiving the input includes receiving a boundary value, the boundary value having at least one of a maximum value and a minimum value defining a maximum and a minimum, respectively, for a distance between at least one feature and the boundary; and

(See the section of the D-cubed reference that is recited verbatim in the 102(b) on-sale bar rejection. Examiner finds that minimum and maximum values correspond to the taught "constraints")

> automatically modifying at least one of the pattern or the plurality of features includes maintaining a distance between the at least one feature and the boundary within the boundary value.

(See the section of the D-cubed reference that is recited verbatim in the 102(b) on-sale bar rejection.)

15. In regards to Claim 4, The D-cubed reference teaches the following limitations:

> 4.   (Original) The method of claim 1, wherein said receiving the indication of modification comprises receiving an indication of modification to a 2-D geometry piece parametrically defining the CAD geometry piece

(See the section of the D-cubed reference that is recited verbatim in the 102(b) on-sale bar rejection.)

16. In regards to Claim 5, The D-cubed reference teaches the following limitations:

> 5.   (Original) The method of claim 4, wherein said receiving the modification to the geometry comprises receiving an indication of modification of a dimension of the 2-D geometry piece parametrically defining said CAD geometry piece.

(See the section of the D-cubed reference that is recited verbatim in the 102(b) on-sale bar rejection.)

17. In regards to Claim 6, The D-cubed reference teaches the following limitations:

> 6.   (Original) The method of claim 1, wherein said receiving the input comprises receiving an indication to optimize the pattern.

(See the section of the D-cubed reference that is recited verbatim in the 102(b) on-sale bar rejection.)

18. In regards to Claim 7, The D-cubed reference teaches the following limitations:

> 7.   (Original) .The method of claim 1, wherein said automatically modifying the CAD geometry piece comprises parametrically updating the CAD geometry piece.

(See the section of the D-cubed reference that is recited verbatim in the 102(b) on-sale bar rejection.)

19. In regards to Claim 8, The D-cubed reference teaches the following limitations:

> 8.   (Currently amended) The method of claim 1, wherein said automatically modifying at least one of the pattern or the plurality of features comprises automatically determining what modification, if any, is necessary to one or more dimension of at least one of the plurality of features.

(See the section of the D-cubed reference that is recited verbatim in the 102(b) on-sale bar rejection.)

20. In regards to Claim 9, The D-cubed reference teaches the following limitations:

> 9.   (Currently amended) The method of claim 1, wherein said automatically modifying at least one of the pattern or the plurality of features comprises automatically determining what modification, if any, is necessary to an inter-feature distance between each of the plurality of features, and changing the inter-feature distance between at least one feature and an adjacent feature upon determining the modification is necessary.

(See the section of the D-cubed reference that is recited verbatim in the 102(b) on-sale bar rejection.)

21. In regards to Claim 10, The D-cubed reference teaches the following limitations:

> 10.   (Canceled)

22. In regards to Claim 11, The D-cubed reference teaches the following limitations:

> 11.   (Currently amended) The method of claim 1, wherein said automatically modifying at least one of the pattern or the plurality of features comprises:
>
> automatically determining what modification, if any, is necessary to a first dimension in view of a determined modification to a second dimension, to maintain a relationship between said first and second dimensions, where the first dimension and the second dimension comprise first and second dimensions of each feature of the plurality of features, and

(See the section of the D-cubed reference that is recited verbatim in the 102(b) on-sale bar rejection.)

> modifying at least one of the first dimension or the second dimension of each feature of the plurality of features.

(See the section of the D-cubed reference that is recited verbatim in the 102(b) on-sale bar rejection.)

23. In regards to Claim 34, The D-cubed reference teaches the following limitations:

> 34.   (New) The method of claim 1, wherein said automatically modifying at least one of the pattern or the plurality of features includes removing one or mote features from the pattern.

(See the section of the D-cubed reference that is recited verbatim in the 102(b) on-sale bar rejection.)

24. In regards to Claim 35, The D-cubed reference teaches the following limitations:

> 35.   (New) The method of claim 1, wherein said automatically modifying at least one of the pattern or the plurality of features includes adjusting a distance between at least one feature and the boundary such that the plurality of features are continuously included within the boundary.

(See the section of the D-cubed reference that is recited verbatim in the 102(b) on-sale bar rejection.)

25. **Claims in claim set 2 (claims 12-13, 15-22, and 36-37) and claim set 3 (claims 23-33 and 38-39) are rejected based on the same reasoning as the claims in claim set 1 (claims 1-9, 11, and 34-35). Claim set 2 consists of apparatus claims, and claim set 3 consists of article of manufacture claims that recite limitations equivalent to those recited in the method claims of claim set 1, and which are taught throughout the D-cubed reference.**

Conclusion

26. The following prior art, made of record and not relied upon, is considered

pertinent to applicant's disclosure.

a) Hoffmann, Christoph M. "D-Cubed's Dimensional Constraint Manager".

Journal of Computing and Information Science in Engineering. March 2001.

Vol.1, Issue 1. pp.100-101. (Teaches the functionalities of the "2D

Dimensional Constraint Solver")

b) Anonymous, "The Constraint Management Company". Computer-Aided

Engineering. Aug. 1996. Vol.15, Issue 8, p.26. (The entire article is direct to

the D-cubed DCM product.)

c) Mills, Robert. "The Advanced State of Solid Modeling." Computer-Aided

Engineering. Sept. 1998. Vol.17, Issue 9, pp.56-66. (Page 64, col.2 to p.65,

col.1 discuss the D-cubed "3D DCM" product.)

d) Anonymous, "Cool CAE Sites". Computer-Aided Engineering. Aug. 1996.

Vol.15, Issue 8, p.88. (The last item discussed in the "Cool CAE Sites" section

is the D-cubed DCM product.)

e) Beckert, Beverly A. "SolidWorks 98". Computer-Aided Engineering. May

1998. Vol.17, Issue 5, p.28. (The first paragraph of col.2 of the "SolidWorks

98" article teaches the use of the D-cubed DMC product.)

f) Knoth, Janmarie, "Autofact '97: Making Manufacturing Accessible".

Computer-Aided Engineering. Oct. 1997. Vol.16, Issue 10, pp.36-37, 40, 94,

104, 106, 108, 110, and 115. (Page 106, col.3, contains a section titled

"Undertaking Development" which is directed to the D-cubed 2-D DCM and 3-

D DCM products.)

g) Hoffman, C.M. and K.-J. Kim. "Towards Valid Parametric CAD Models."

Computer-Aided Design. Jan. 2001. Vol.33, Issue 1, pp.81-90. (Teaches an

algorithm for solving for the valid parameter ranges for CAD models.)

h) Durand, C. and C.M. Hoffmann. "Variational Constraints in 3D". Proc. Int'l

Conf. on Shape Modeling and Applications, 1999. Mar. 1-4, 1999. pp.90-97.

(Teaches how to solve variational constraint problems involving points, lines,

and planes.)

i) Essert-Villard, C. and P. Mathis. "Interactive Handling of a Construction Plan

in CAD." Proc. of the 5th Conf. on Information Visualization, 2001. July 25-27,

2001. pp.124-129. (Teaches the use of constraints in design modification).

j) List of publications of Christoph M. Hoffmann. http://www.informatik.uni-

trier.de/~ley/db/indicies/a-tree/h/Hoffmann:Christoph_M=.html. (Author of

several articles pertaining to parametric CAD modeling.)

k) U.S. Patents 6,124,861 and 6,384,841 to Lebovitz et al. Examiner reviewed

the patents for possible double patenting, and did not find any.

l) U.S. Patent 6,925,344 to Lambert et al. Examiner reviewed the patent for

possible double patenting, and did not find any.

27. Applicant's amendment necessitated the new ground(s) of rejection presented in

this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Correspondence Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ayal I. Sharon whose telephone number is (571) 272-3714. The examiner can normally be reached on Monday through Thursday, and the first Friday of a bi-week, 8:30 am – 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo Picard can be reached at (571) 272-3749.

Any response to this office action should be faxed to (571) 273-8300, or mailed to:

> USPTO
> P.O. Box 1450
> Alexandria, VA 22313-1450

or hand carried to:

> USPTO
> Customer Service Window
> Randolph Building
> 401 Dulany Street
> Alexandria, VA 22314

Any inquiry of a general nature or relating to the status of this application

or proceeding should be directed to the Tech Center 2100 Receptionist, whose

telephone number is (571) 272-2100.

Ayal I. Sharon

Art Unit 2123

February 15, 2006

Paul L. Rodriguez 2/17/06
Primary Examiner
Art Unit 2125